

We claim

1. A method of chemical vapor deposition (CVD) of copper films comprising:
preparing a substrate, including forming structures thereon have a barrier metal
exposed surface;

5 placing the prepared substrate into a CVD chamber;
heating the substrate to a temperature of between about 200°C and 250°C;
introducing a water flow in a carrier gas for at least one minute;
stopping the water flow; and
starting the flow of copper precursor.

10 2. The method of claim 1 wherein said introducing a water flow includes introducing
a water flow of between about 0.005 ml/min and 0.010 ml/min, and wherein the carrier gas is taken
from the group of carrier gases consisting of Ar, He and N₂.

15 3. The method of claim 1 wherein said introducing a water flow includes allowing the
water flow to last for a maximum of five minutes.

4. The method of claim 1 wherein said introducing a water flow includes providing a
water vapor flow of between about 100 sccm and 150 sccm.

5. A method of chemical vapor deposition (CVD) of copper films comprising:
preparing a substrate, including forming structures thereon have a barrier metal
exposed surface;
placing the prepared substrate into a CVD chamber;
5 heating the substrate to a temperature of between about 200°C and 250°C;
introducing a water flow in a carrier gas for at least one minute at a water flow of
between about 0.005 ml/min and 0.010 ml/min;
stopping the water flow; and
starting the flow of copper precursor.

6. The method of claim 5 wherein said introducing a water flow includes providing a
carrier gas taken from the group of carrier gases consisting of Ar, He and N₂.

7. The method of claim 5 wherein said introducing a water flow includes allowing the
15 water flow to last for a maximum of five minutes.

8. The method of claim 5 wherein said introducing a water flow includes providing a
water vapor flow of between about 100 sccm and 150 sccm.

9. A method of chemical vapor deposition (CVD) of copper films comprising:
preparing a substrate, including forming structures thereon have a barrier metal
exposed surface;
placing the prepared substrate into a CVD chamber;
5 heating the substrate to a temperature of between about 200°C and 250°C;
introducing a water flow in a carrier gas for between at least one minute and five
minutes, wherein the carrier gas is taken from the group of carrier gases consisting of Ar, He and
N₂;
stopping the water flow; and
10 starting the flow of copper precursor.

10. The method of claim 9 wherein said introducing a water flow includes introducing
a water flow of between about 0.005 ml/min and 0.010 ml/min.

15 11. The method of claim 9 wherein said introducing a water flow includes providing a
water vapor flow of between about 100 sccm and 150 sccm.

12. A method of chemical vapor deposition (CVD) of copper films comprising:
preparing a substrate, including forming structures thereon have a barrier metal
exposed surface;

placing the prepared substrate into a CVD chamber;

5 heating the substrate to a temperature of between about 200°C and 250°C;

introducing a water flow of between about 0.005 ml/min and 0.010 ml/min, in a
carrier gas for between about at least one minute and five minutes;

stopping the water flow; and

starting the flow of copper precursor.

10 13. The method of claim 12 wherein said introducing a water flow wherein the carrier
gas is taken from the group of carrier gases consisting of Ar, He and N₂.

14. The method of claim 12 wherein said introducing a water flow includes providing a

15 water vapor flow of between about 100 sccm and 150 sccm.